

# Weekly report

1 Done

1.1 Reading:

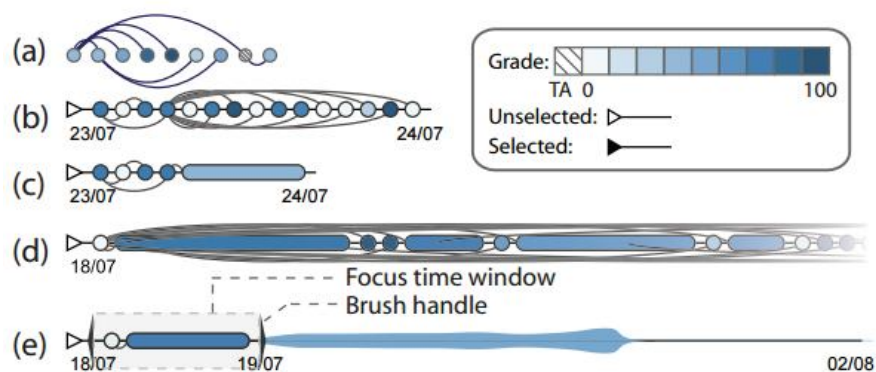
## 1.1.1 VisDock: A Toolkit for Cross-Cutting Interactions in

### Visualization (Choi):

They put forward a concept called cross-cutting interaction for visualization and define it as an interaction technique that is common to a range of visual representations, data, and tasks. Mimicking the functionalities of the applications like Adobe Photoshop and Illustrator, they realize some new functionalities including lasso selection, view navigation, layer management and annotation. The most important thing is that they provide open source JavaScript library, which get extra bonus for this paper.

## 1.1.2 Visual Analysis of MOOC Forums with iForum (Qu)

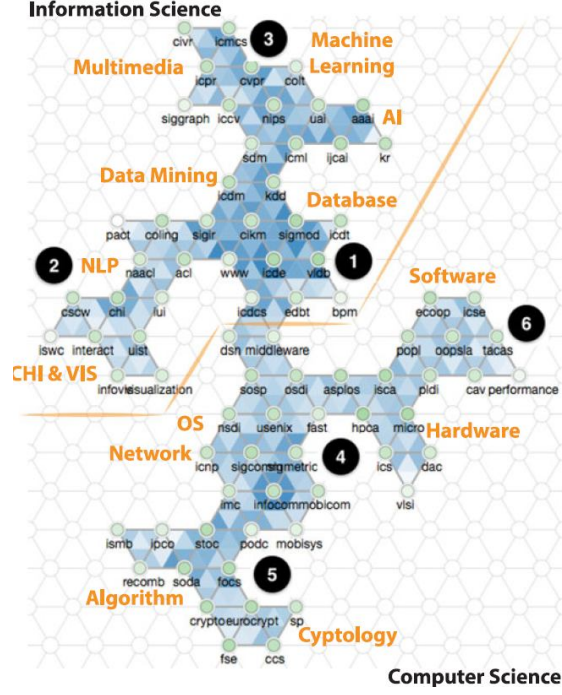
The analysis subject of iForum is MOOC Forum, a JAVA programming course forum, data including user posts and students' scores. It is a novel issue for visual analysis. Besides, they polish some existing layouts, such as the focus-and-context design of thread river.



## 1.1.3 UnTangle Map: Visual Analysis of Probabilistic Multi-

### Label Data (Nan Cao)

This paper shows us an idea about visualization of data with multiple probabilistic labels.

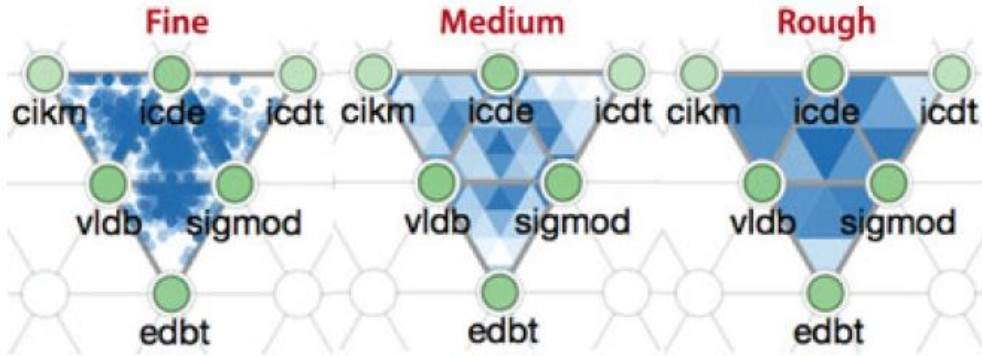


Cao et al. provide an automatic label placement algorithm and adaptive interactions that allow users to control the label positioning for different information needs. Their algorithm realizes that nearby labels are more relevant to each other in terms of shared data items via greedy algorithm.

$$\mathcal{F} = \alpha \frac{1}{|E|} \sum_{(v_i, v_j) \in E} c_{ij} + (1 - \alpha) \frac{1}{|T|} \sum_{t \in T} c_t,$$

$$G_L = \operatorname{argmax}_{V, E} \mathcal{F},$$

Comparing with their previous work: “*UnTangle: Visual Mining for Data with Uncertain Multi-labels via Triangle Map*”, they give a new hierarchy design as follow:



#### 1.1.4 Adaptive Privacy-Preserving Visualization Using Parallel Coordinates (Dasgupta)

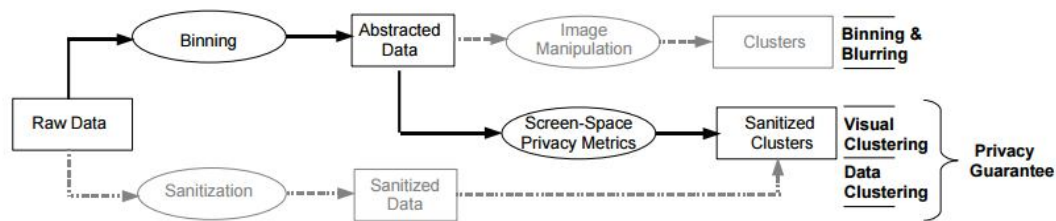
They point out that the diverse techniques for privacy-preserving data proposed by researchers in the fields of data mining have a well-known drawback, which is that for even a small guarantee of privacy, the utility of the datasets is greatly reduced.

They summarize plenty of approaches to privacy-preserving visualization as:

- Binning and Blurring: There is natural loss of precision due to the limited resolution of screen. Controlling the loss extent is the main idea of this approach. (No guarantee)

- Data-Space Sanitization: About data mining.

- Screen-Space Sanitization: Employing effective visual representation.

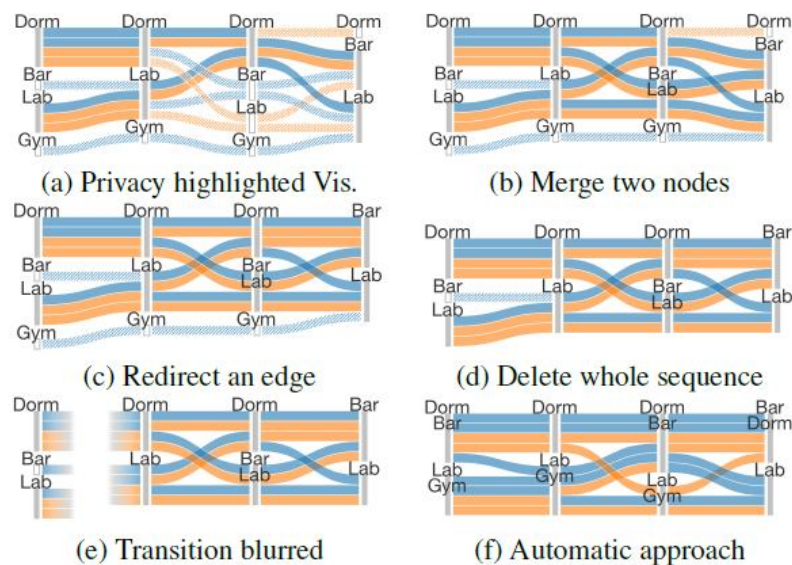


### 1.1.5 Privacy Preserving Event Sequence Data Visualization

#### using a Sankey Diagram-like Representation (Zhou)

They present the design and evaluation of a visual interface that assists users to employ commonly used data anonymization techniques for making privacy-preserving visualizations of the data. Their subject is event sequence data.

Their application provides privacy preserving operations including merging, redirecting, deleting, and blurring.



## 1.2 Privacy

1.2.1 Introduced our idea to new participants.

1.2.2 Wrote related work.

2 To Do

2.1 Do as the schedule.

2.2 Learn about differential privacy.